658 238 students, to fifteen with 1863 students. Nor has the increase
871 in schools been attended by a decrease in the quantity or
[875] quality of the teachers, although they are admittedly still inadequate in numbers and in training. The return of 'Iraqī students sent abroad at the expense of the Government in lieu of setting up its own Higher Educational Institutions has brought fresh blood, progressive ideas and new standards to Education to an extent not equalled by any other Ministry. Careful efforts have also been made, particularly in recent years, to adapt Western methods to 'Iraq instead of blindly adopting them. In this respect, the educational system in vogue in present-day Turkey has been looked to as furnishing a model.

871 Notwithstanding these praiseworthy achievements, concern has been expressed both by 'Iraqīs and by others lest various tendencies, now observable in the educational system, mar the work of the Ministry. Such trends seem to be: the extension of the number of schools without maintaining their grade or the standard of work required by them; the failure of the Ministry to dissociate itself entirely from political struggles and controversies; and the acquisition by students of the view that education is vocational rather than cultural in aim and that government positions should be the reward of their school certificates. On the ability of the educational system to free itself from these handicaps, either by the wise direction of educational affairs on the part of those in authority or by the growth of a new attitude on the part of the people themselves, will depend much of the continued progress of 'Iraq.

744 In other fields, a health service has been in existence since
759 the British Occupation, a Medical School has been created at Baghdad, plague and cholera checked and sanitary regulations for the corpse traffic to the Holy Cities imposed. On the other hand, the Medical School has been unable to provide sufficient highly trained graduates with a willingness to take posts in out-
[758] lying districts. Medical centres are unable to reach but a small
164 portion of the total population. Malaria, tuberculosis and eye dis-

7: International Bank N, S-4 (1951) 1952 MH1 Iraq MH1

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Additional provision for reconstruction of the Karkh and Kut Hospitals	ID	200,000
Repairs to the Maude Hospital (Basra), Amara Hospital, Erbil Hospital and Suleimaniya Hospital		250,000
Infectious disease blocks for the Erbil and Mosul Hospitals		65,000
Maternity block for the Hilla Hospital		25,000
Laundry for Diwaniya Hospital		12,000
Additional wards for Mosul and Kirkuk Hospitals		80,000
Completion of Mental Diseases Hospital		250,000
Additional provision for operating facilities at Royal Hospital		50,000
Children's Ward at Royal Hospital		40,000
Maternity block at Royal Hospital		40,000
Dental equipment for hospitals		20,000
Total	ID	1,032,000

As it becomes possible to devote more attention to increasing facilities for treatment, priority should be given generally to the construction of additional dispensaries in the rural areas.

Doctors

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[758]

At present there is about one practicing doctor to every 7,000 of the population, but many of the doctors are concentrated in Baghdad. Only about 35 doctors are now being registered annually, but with increased accommodations and more laboratory facilities, it will be possible to enroll more students so that at least 50 will qualify as doctors annually. This number may be sufficient for Iraq's needs, provided that an adequate number of suitably trained health officers are available for service in village dispensaries and that nurses and dressers receive more training.

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Doctors receive their training at the Royal Faculty of Medicine, which was founded in 1927. The syllabus and teaching seem, on the whole, to be good. They emphasize adequately the study of the endemic diseases, although they do not give enough weight to the teaching of public health and preventive medicine. The recent appointment of a professor of public health should give a better balance to the program of instruction. Public health as such should probably be taught as a postgraduate course. It would include such subjects as public health administration, public he

7: International Bank N, S-4 (1951) 1952 MH1 Iraq MH1

759 legislation, water supplies, removal and treatment of waste matter, industrial health, and maternity and child welfare. In the qualifying course it would best be taught as social medicine which might be defined as "the study of those environmental factors which affect health, and the application of that study to the benefit of man with a view to the prevention of disease and promotion of health."

There appears to be an excessive trend towards specialization. In some hospitals specialists have been appointed where there is clearly not enough specialized work for them. Though specialization should by no means be overlooked, a specialist service must depend first upon an adequate supply of general practitioners. Probably the four most needed types of doctors, in addition to physicians, are surgeons, eye specialists, gynecologists and obstetricians.

758 369 One of the more urgent requirements is to attract doctors to the provinces. Iraqi doctors have shown little inclination so far to work in villages, partly for financial reasons but not a little because of the great lack of amenities in rural areas. There are no suitable houses for the doctors and their families, few schools, and in many places neither lighting nor a pure water supply. Young doctors who have been trained to require and depend upon all the latest technical aids in diagnosis and to insist upon the use of the most modern forms of treatment generally find that in most villages they cannot practice the medicine they were taught. If the best use is to be made of the doctors available, as much emphasis must be put on improving village facilities as on training doctors for the provinces.

Medical Aides

759 The acute shortage of trained aides is almost more serious than the shortage of doctors. In one hospital there were 21 doctors but only 12 trained nurses. There is a general lack of specially trained laboratory assistants, operating room attendants, radiographers, hospital storekeepers or hospital dispensers, and the like. Health officials, trained primarily for service in village dispensaries, are frequently diverted to hospitals to act as special "medical auxiliaries".

In all, there are about 1,000 nurses and dressers for some 5,000 hospital beds. Trained nurses are few in number so that

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Pharmacists are licensed by the Director General of Health. An Inspector of Pharmacies inspects private pharmacies, although it would appear reasonable to place the supervision of these pharmacies more directly under the local chief medical officer.

Certain drugs, such as the anti-biotics and sulphonamides, are supplied in most countries only on a doctor's prescription. In Iraq, however, these drugs can be freely obtained at any pharmacy. Hospitals at times suffer from a shortage of drugs owing to the limited funds made available by the government. Thus patients admitted to hospitals sometimes have had to buy drugs for themselves from pharmacies in the towns. It is to be hoped that future budgetary provisions will be sufficient to supply hospitals with the drugs necessary for their work.

Under the present system, local hospitals send their requisitions to the Director General of Health, through the chief medical officer of the province. These requisitions are scrutinized by the Director of Supplies, who passes them on to the Director General of Health for authority to issue the supplies required. The issues are then made direct to the hospital concerned. It seems that most medical supplies—although by no means all—are purchased from the Crown Agents of the British Government. The central supplies are kept in Baghdad in what seems to be an orderly and well-run department. There is at present some congestion in the drugs and dressings section, and new buildings are required to provide adequate space for the many items stocked.

Because Iraq is a country of great distances with many scattered villages and hamlets, during certain seasons of the year small communities may be cut off from medical aid by snow, rain and mud. It is not possible to place hospitals and dispensaries within easy and certain reach of all people throughout the year. There are, however, many simple household remedies such as the anti-malarial drugs, aspirin, DDT powder, iodine and Epsom salts that could be put up in suitable packages with full directions for use. It is suggested that the government package such remedies for sale in village shops at a price within reach of the local people.

7: International Bank N, S-4 (1951) 1952 MH1 Iraq MH1

cal assistant) treat simple conditions—and he could well treat 743
cases of most of the major endemic diseases—but he should also be the village "sanitarian". The village midwives should be based at the health center and draw their supplies there. Vaccination against smallpox—of prime importance in Iraq—and other protective innoculations could, as required, be carried out in the centers. Later, public health nurses could be added to the center staffs.

The number of health centers must necessarily depend, among other things, upon local population density, distances and means of communication. Visiting doctors from the hospital to which the center is attached could call at regular intervals to see special cases referred to them by the health official. By such means as these, medical assistance and advice could be brought within reach of most of the people and the best use be made of the doctor's services. At present the district or *qadha* doctors have no means [758] ●
of transport to visit dispensaries.

The additional health officials who would staff these centers could be selected from among the hospital dressers. Since these men have already had considerable clinical experience, it should be possible to train them in about a year. Because they are much closer to the village people than the visiting doctors, they can do a great deal to help the local people. One Iraqi doctor stated that an experienced and happy health official can do better work in a village than an unhappy and disgruntled newly-qualified doctor.

There are about 400 dispensaries at present, some of which are staffed only by dressers. Assuming 20 medical assistants can be trained annually, it should be possible to staff all the present dispensaries and 200 new ones with medical assistants in less than 20 years. The buildings and staff now used by the School for Health Officials (founded in 1932) could equally well be used as a training school for medical assistants.

Training of Public Health Nurses

As soon as some midwives have been trained, a program 744
should be started for the training of public health nurses. These women would hold positions of considerable responsibility, and every candidate for the course should already be a trained nurse and ▪ midwife.

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APPENDIX

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TABLE 1

HOSPITALS, HOSPITAL BEDS, DISPENSARIES AND DOCTORS
(by provinces, with populations)

Provinces	Hospitals	Beds	Dispensaries	Doctors	Population
Baghdad	30	1,988	56	419	805,293
Mosul	8	303	47	67	601,589
Basra	7	539	21	65	352,039
Hilla	5	264	21	25	261,903
Diyala	3	87	29	24	273,336
Diwaniya	3	117	25	22	333,787
Dulaim	4	181	18	12	193,294
Erbil	4	100	23	17	240,273
Kirkuk	5	207	28	58	285,878
Suleimaniya	3	103	15	14	222,732
Kerbela	3	228	14	22	276,670
Muntafiq	5	205	17	18	369,806
Kut	4	127	22	14	224,792
Amara	5	353	12	20	308,108
Totals	89	4,802	348	797	4,749,500

TABLE 2

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NUMBER OF VISITS TO HEALTH INSTITUTIONS FOR TREATMENT
(by provinces)

Provinces	1944	1945	1946	1947	1948	1949
Baghdad	1,004,856	1,255,348	1,523,935	1,471,621	1,553,020	1,664,023
Basra	306,612	312,842	378,903	373,735	381,907	382,241
Mosul	423,819	455,584	509,410	541,881	576,291	644,647
Amara	269,536	291,722	336,025	345,873	297,987	279,273
Erbil	144,453	155,649	147,164	165,704	150,572	168,980
Diwaniya	324,148	351,092	319,131	361,368	364,949	380,720
Diyala	288,912	284,181	319,518	343,626	322,715	357,198
Dulaim	199,063	199,996	239,952	248,285	227,797	222,030
Hilla	320,087	364,942	306,319	436,523	434,789	408,278
Kerbela	375,591	308,693	397,757	356,427	428,911	431,666
Kirkuk	133,571	168,809	229,044	209,588	202,219	206,556
Kut	188,978	230,255	202,970	211,061	234,522	257,991
Muntafiq	247,293	255,185	297,433	327,114	277,494	285,306
Suleimaniya	141,406	146,185	194,126	193,919	203,251	187,427
Totals	4,368,325	4,780,483	5,401,687	5,586,725	5,656,424	5,876,336

164 provinces, and conducts research and field
462 investigations on the distribution and the
312 control of the disease and the intermediate
744 snail host. In the 7 years 1944-50, from 15,800 to 27,300 persons were treated annually in government hospitals and dis-
164 pensaries. The disease is considered com-
758 monplace in most areas, however, and probably not over 5 to 6 per cent of the infected individuals seek treatment under
743 ordinary conditions. Since 1949, special dis-
164 pensaries have been established in Baghdad, Basra and Kufa, while mobile clinics tour the most seriously infected districts. In 1950, there were 11 mobile units for the treatment of schistosomiasis, malaria and hookworm infection among the rural populations.

164 ANCYLOSTOMIASIS. Ancylostomiasis is
361 widespread in the irrigated areas, but the exact distribution and severity of the infection in the different provinces are not accu-
[134] rately known. *Ancylostoma duodenale* is the only species found in the foci studied. The infection rates are generally estimated at 10 to 20 per cent in the northern provinces and at 40 per cent in the southern. They are especially high in the Amarah and the Al Qurnah regions, but decrease toward the south, and are relatively low in the districts
164 along the Shatt al Arab. In a study reported
742 in 1939,[47] fecal specimens from apparently healthy men, 18 to 20 years of age, from various parts of the country were examined for hookworm ova. The presence of ova was detected in 25 per cent of the specimens from 125 men from Baghdad and in 46 per cent from 135 men from the rural districts of Baghdad *liwa*. Comparable examinations revealed ova in the specimens from 26 per cent of the individuals examined from Diyala *liwa* and from 25 per cent of the individuals from Dulaim. The degree of infection is usually mild, but serious cases with hemoglobin indices as low as 10 per cent are not infrequent.

164 Treatment facilities are provided by the
758 schistosomiasis control units, as well as by
742 the government hospitals and dispensaries.

63:Simmons et al G-6 (1941-1951) 1954
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An ancylostomiasis section is incorporated in the Department of Endemic Diseases, and a program for the improvement of rural sanitation is being developed by the health authorities. 164 744

OTHER HELMINTH INFECTIONS. A large proportion of the inhabitants harbor one or more types of intestinal worms. Ascariasis predominates in the northern and the central provinces. Heavy infections, often with intestinal obstruction, are common. In the studies made on groups of men of 18 to 20 years of age, as indicated above, ova of *Ascaris lumbricoides* were found in the fecal specimens from 10 per cent of the 125 individuals examined in Baghdad city. In the provinces, ova were detected in fecal samples from 9 per cent of 135 persons from Baghdad, from 15 per cent of 145 persons from Dulaim and from 13 per cent of 309 persons from Diyala. 164 136 742

Enterobiasis, trichuriasis and, to a lesser extent, strongyloidiasis are prevalent. *Trichostrongylus*, a parasite of sheep and goats which sometimes infects man, is widely distributed in the Shatt al Arab region. Infections with the dwarf tapeworm, *Hymenolepis nana*, are numerous. The beef tapeworm, *Taenia saginata*, is often encountered, but not as widely as in Syria and other Arab countries where more raw meat is customarily consumed. The pork tapeworm, *T. solium*, is occasionally observed in the Christian communities. 164 136 232

Hydatid disease is endemic, especially in the central provinces. Stray dogs are numerous and serve as primary reservoirs of infection. In a survey published in 1940,[48] adults of *Echinococcus granulosus* were found in 18 per cent of 123 street dogs examined in Baghdad. Hydatid cysts were seen in the carcasses of 12 per cent of 2,347 sheep and goats slaughtered in the municipal abattoir and in 25 per cent of 223 cattle. 164 136 232 742

Other Infections. Brucellosis is enzootic among goats, sheep and cattle, and sporadic human infections result from the consumption of cheese, *leban* and other unboiled 164 232 758

milk products, or from contact with infected animals. From 5 to 97 cases were treated annually in government institutions in the 6 years 1944-49. In the examination of 2,548 blood serum specimens sent to the Wassermann laboratory in Baghdad in 1938,[4] positive agglutination with Brucella antigens was obtained in 6 per cent. *Br. melitensis* was isolated from 5 of the 13 samples from which bacteriologic cultures were made.

Diseases Spread Chiefly Through the Respiratory Tract

Tuberculosis. Tuberculosis is among the most serious diseases in Iraq. In 1944-49, from 3,400 to 6,800 cases of pulmonary and from 1,400 to 3,100 of nonpulmonary tuberculosis were recorded annually. Such figures are of little value in assessing the problem, however, due to inadequate reporting and the shortage of diagnostic and treatment facilities. Local authorities estimate that the prevalence of latent or active infections approximates at least 25 to 30 per cent in many villages in the vicinity of Kirkuk and Basra, and undoubtedly in other areas. Widespread undernutrition and low standards of living, associated with overcrowding and ignorance of the basic principles of hygiene, are factors contributing to the spread of the disease. The death rates are known to be high, but little precise information is available. It is believed that a considerable number of tuberculosis deaths are erroneously attributed to pneumonia and other respiratory infections. Moreover, the inhabitants are often reluctant to admit the presence of tuberculosis in the family due to the stigma customarily attached to the disease. In the decade 1941-50, an average of 760 cases were treated in government hospitals each year, with a fatality rate of about 25 per cent. The maximum number of cases occurred in the group from 16 to 30 years of age.

All types of tuberculosis are encountered. Involvement of the bones or the glands accounts for a large proportion of the non-

countered. The prevalence rarely exceeds 5 to 20 cases a year, but, in 1948, outbreaks totaling 185 cases were recorded. Rheumatic fever is one of the most important diseases of childhood, particularly in Baghdad. From 10,000 to 23,000 cases were treated annually in the government hospitals and dispensaries throughout the country in 1944-49. Poliomyelitis was formerly regarded as sporadic, but cases are being recognized with increasing frequency. With improved diagnostic facilities, 70 to 100 cases have been reported annually since 1949 from the children's hospital in Baghdad.

Diseases Spread or Contracted Chiefly Through Contact

Venereal Diseases. All forms of venereal disease are encountered, especially in the urban communities. Syphilis predominates among the recognized cases; congenital syphilis is common. The prevalence of the disease in Baghdad and other cities is estimated locally at between 2 and 10 per cent. Chancroid and gonorrhea are widespread, but the extent of infection in the general population is not accurately known. Lymphogranuloma venereum and granuloma inguinale are relatively rare. The cases of venereal disease treated in government institutions averaged about 38,600 annually in the 6 years 1944-49. Roughly 65 per cent were diagnosed as syphilis, 26 per cent as gonorrhea and 9 per cent as chancroid. Treatment is provided by the health authorities in the various general hospitals and dispensaries, as well as in 2 special venereal disease hospitals.

Bejel is widely distributed among the nomadic and the seminomadic peoples in the Tigris and the Euphrates valleys and around the marshes and the lakes in the lower delta region. Apparently a form of syphilis transmitted by nonvenereal contact, the disease is characterized by a predominance of mucocutaneous lesions, usually with a high degree of oral and pharyngeal involvement. It is associated with primitive conditions of living, and is most extensive

164 where the infection was introduced by
369 refugees from Amarah and has spread in the *serifa* settlements and the slum sections of the city.

744 A syphilis and bejel control program was
164 initiated in 1950 by the government health authorities, in conjunction with the World Health Organization and the United Nations International Children's Emergency Fund. A dispensary and training center and research laboratories are maintained at the headquarters in Baghdad, while field units conduct surveys and mass treatment campaigns in the provinces. Investigations on the distribution and the relative prevalence of the infection, the significance of possible
[758] insect vectors, the most effective methods of treatment and the radiologic and the serologic aspects of the disease are being carried forward by the headquarters and field personnel.

164 **Diseases of the Eyes.** Trachoma is
758 widespread, and is regarded by many as one of the most important endemic diseases in the country. The cases treated in government institutions usually average over
164 500,000 a year. The infection rates are uniformly high in the central provinces, and, in 1950, were calculated at over 233 per 1,000 population in Baghdad, 195 in Kerbela, 140 in Diyala and 102 in Hilla *liwas*. In the remaining provinces they ranged from 24 to 70 per 1,000. The density of population and the concentration of medical facilities in central Iraq cast some doubt, however, that such figures are representative of the degree of infection in the different regions. Cases of advanced trachoma are common, while local authorities estimate that 25 to 40 per cent of the children in many districts suffer from some form of the disease. Statistics from the government hospitals and dispensaries for the 15 years from 1929 through 1943 show that 53 per cent of all the eye diseases treated and 26 to 36 per cent of the total infections were trachomatous in origin.

Conjunctivitis, including both infectious and noninfectious types, is almost equally

seasonal distribution of the different species of malarial parasites. *Plasmodium falciparum* appears to predominate in most localities with a moderate to high rate of endemicity, as well as during epidemics in all parts of the country. *P. vivax* is also widespread. It is often observed in the blood of infected individuals, even in hyperendemic areas, during the nontransmission season, and the local authorities state that it is unusually difficult to eradicate certain strains in the course of treatment. *P. malariae* is reported more or less sporadically. In certain areas in northern Iraq, it is being encountered with increasing frequency, and some evidence exists that it may be found to take the place of *P. vivax* as the principal species concerned with clinical relapses. Among the 2,865 to 4,281 cases of malaria treated annually in the hospitals and the dispensaries of the Iraq Petroleum Company in 1946 through 1950, from 8 to 53 per cent were identified as *P. vivax* infections, from 0.7 to 7 per cent as *P. falciparum* and up to 8 per cent as *P. malariae*. The remainder were diagnosed on a clinical basis. *P. ovale* was reported recently, but the origin of the infection was obscure. Blackwater fever is rare, although cases are sometimes seen in Basra and in the northern highlands.

Malaria control measures have been carried on in limited areas under the auspices of governmental or other agencies. The Department of Endemic Diseases of the Ministry of Health conducts anopheline control and treatment programs in highly endemic areas throughout the country through subordinate units in central, southern and northern Iraq. A rural health and malaria control project was initiated in the hyperendemic Tanjero valley in Sulaimaniya *liwa* in 1952, in co-operation with the World Health Organization.

Rickettsial Infections. Outbreaks of louse-borne typhus recur almost annually, but are seldom extensive, except under abnormal conditions, as during war periods. The infection is frequently introduced by

p. 45(A)

164 369 is endemic in the alluvial plain region, within a radius of about 100 miles around Baghdad, which is one of the major foci in the Middle East. There the infection rates average 20 to 60 per cent, and probably approach 95 per cent in many localities, especially in the older parts of the city. Outside of this traditional focus, the infection is distributed irregularly. Some of the agricultural districts to the south are relatively free from the disease, but in the more compact towns and villages the infection rates are as high as 40 per cent. In Basra and Muntafiq *liwas*, the extent of infection is slight, and even in the towns the prevalence probably does not exceed 3 to 4 per cent. North of Baghdad the disease appears to be confined to isolated foci. It is widespread in the city of Mosul and in the towns of Beled, Samarrah and 'Aqra, but is almost completely absent from the steppe country and from the mountainous areas of Iraqi Kurdistan.

164 758 In the 6-year period 1944-49, the cases of Oriental sore treated annually in government institutions ranged between a minimum of 2,910 in 1948 and a maximum of 10,502 in 1945. All ages are affected, but most of the infections are acquired in childhood, with the greatest susceptibility between 1 and 4 years of age. Multiple lesions [511] are frequent, particularly among individuals living in congested and unhygienic surroundings. Ulcerative sores predominate, but the nodular type is seen in a large percentage of the cases. Secondary tuberculoid lesions, arising in healing ulcers, are also common in children. The largest number of cases is usually observed in August, September and October. *Phlebotomus sergenti* is apparently the only important vector in [736] Iraq, as in Pakistan. Cutaneous infections occur among the dogs and the cats found in the cities, but they are thought to play a minor role in the spread of the human disease.

164 369 Visceral leishmaniasis, or kala-azar, is suspected of being sporadic in the northern part of the country, although up to 1950

p. 46(B)